A Vietnam Social Accounting Matrix (SAM) for the Year 2003

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Abstract: This paper documents a Vietnam Social Accounting Matrix (SAM) for the year 2003. The 2003 Vietnam SAM contains 275 accounts including 112 production activity accounts, 112 retail commodity accounts, three transportation margins accounts, three trade margins accounts, 14 primary factor accounts, one enterprise sector account, 16 households group accounts, seven government current budget accounts, two inventory accounts (private and public inventory accounts), three capital accounts (private, public and aggregate capital accounts), one rest of the world account, and one totals account.

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Preface: The current 2003 Vietnam Social Accounting Matrix represents the result of a great effort undertaken by several dedicated individuals based at the Central Institute for Economic Management (CIEM) at the Ministry of Planning and Investment, the General Statistical Office (GSO), and the Department of Economics at the University of Copenhagen. The construction of the SAM would not have been possible without the general guidance of Mr. Dinh Van An and Mrs. Vu Xuan Nguyet Hong. Special thanks go to Miss Dang Thu Hoai for her great efforts to ensure efficient coordination between the different contributors. Great appreciation is also due to Bui Trinh Can for the development of a 2003 Vietnam Supply-Use Table. In addition, thanks go to Pham Lan Huong, Hung Duong Manh, Huong Quynh, Hoang Van Thanh, and Le Truong.

Abbreviations:

CIEM – Central Institute for Economic Management
DoE – Department of Economics
GSO – Government Statistical Office
SAM – Social Accounting Matrix
SUT – Supply-Use Table

1. Introduction

The current paper documents a 2003 Social Accounting Matrix (SAM) for Vietnam. Previous attempts to construct Vietnamese SAMs include the construction of Vietnam SAMs for the years 1996-97 (Nielsen; 2002), and 1999 (CIEM-NIAS; 2001), as well as the construction of a 2000 Vietnam SAM by Jensen, Rand & Tarp (2004). The latter 2000 Vietnam SAM was based on the most recent 2000 Vietnam input-output table currently available. In contrast, no input-output table was available for the year 2003.[2] It was therefore decided to rely on a 2003 Supply-Use Table (SUT), which was developed by GSO (2006a) as part of the current effort to establish a 2003 SAM for Vietnam.[3]

There are several major advantages associated with making use of the newly developed 2003 Vietnam SUT. First, the SUT disaggregates marketing margins into two separate trade margins and transportation margins accounts. Relying on the SUT therefore means that it is possible to account separately for trade margins and transportation margins in the 2003 Vietnam SAM. This represents an important new feature, which has not been seen in previous work. Other attempts to account separately for marketing margins include the 1994-95 Mozambique SAMs constructed by Arndt, Cruz, Jensen, Robinson & Tarp (1998), the 1992 Tanzania SAM constructed by Wobst (1998), and the 1991 Zimbabwe SAM constructed by Thomas & Bautista (1999). A common feature among these SAM data sets is that they account separately for marketing margins related to exports, imports, and domestically marketed goods. However, none of the data sets account separately for trade margins and transportation margins.

A second important advantage of relying on the 2003 Vietnam SUT is that it accounts separately for private and public inventory changes as well as private and public investment demand. In this way, it differs from the 2000 input-output table, which distinguishes between stock changes and investment demand, but lacks a distinction between private and public sectors. Relying on the 2003 Vietnam SUT therefore means that the 2003 SAM will include a fuller and more appropriate description of private and public sector budgets, and their relative pull on foreign resources for capital accumulation purposes. Finally, a third important advantage of relying on the 2003 Vietnam SUT is that it accounts for a non-diagonal make matrix, i.e. it accounts for the fact that production activities may produce several distinct retail commodities.

The methodology for establishing a 2003 Vietnam SAM is partitioned into two steps. The initial step consists of establishing a 2003 Vietnam Macro SAM. The Macro SAM is subsequently used to supply control totals for establishing the 2003 Vietnam Micro SAM. The initial construction of the 2003 Macro SAM consists of two sub-steps, namely the initial construction of a raw unbalanced Macro SAM followed by the balancing of the unbalanced SAM. The subsequent construction of the 2003 Micro SAM consists of two similar sub-steps, namely the initial construction of a raw unbalanced Micro SAM followed by the balancing of the unbalanced SAM. The balancing methodology relies on the so-called cross-entropy statistical method, which was developed by Golan, Judge & Robinson (1994) and applied in e.g. Arndt, Cruz, Jensen, Robinson & Tarp (1998).

The rest of the document is structured to document the different steps in the construction of the 2003 Vietnam SAM. Accordingly, Section 2 will record the data sources which were used to derive

[2] A new Vietnam input-output table is scheduled to be released by the Government Statistical Office in 2008.
[3] The 2003 Vietnam Supply-Use Table was developed as part of the CIEM-DoE project. As such, it stands as a separate important contribution of the current project.

each individual data entry of the unbalanced Micro and Macro SAMs (Sub-section 2.1). In addition, the section will discuss the balancing of the 2003 Macro SAM (Sub-section 2.2), as well as the balancing of the 2003 Micro SAM (Sub-section 2.3). Section 3 contains concluding remarks.

2. The 2003 Vietnam SAMs

The development of the 2003 Vietnam SAM is described in this section. The row and column accounts of the 2003 Macro SAM are outlined in Appendix A, while the row and column accounts of the 2003 Micro SAM is outlined in Appendix B. Overall, the Macro SAM contains 22 accounts including one activity account, one commodity account, one marketing margin account, three factor accounts (including land, labor and capital factor accounts), one enterprise account, one household account, seven government accounts (government current, production tax, sales tax, import tariff, factor tax, enterprise tax, and household tax), two inventory accounts (private inventory and government inventory), three capital accounts (private capital, government capital and aggregate capital), one rest of the world account, and one totals account. .

Similarly, the row and column accounts of the 2003 Micro SAM are outlined in Appendix C. Overall, the 2003 Micro SAM contains 275 accounts including 112 production activity accounts, 112 retail commodity accounts, three transportation margins accounts (export, imports and domestically marketed production), three trade margins accounts (exports, imports, and domestically marketed production), 14 primary factor accounts (one land factor account, 12 labor factor accounts (disaggregated across location (rural/urban), sex (male/female), and educational level (uneducated/medium education/high education)), and one capital factor account), and 16 household group accounts (disaggregated across location (rural/urban) as well as characteristics of the head of household (sex (male/female) and type of employment (farmer, self-employed, wage-earner, non-employed))). The remaining accounts are similar to the Macro SAM accounts including one enterprise sector account, seven government accounts (government current, production tax, sales tax, import tariff, factor tax, enterprise tax, and household tax), two inventory accounts (private inventory and government inventory), three capital accounts (private capital, government capital and aggregate capital), one rest of the world account, and one totals account.

The construction of the unbalanced 2003 Macro SAM and the unbalanced 2003 Micro SAM will be described in Sub-section 2.1. In particular, the description of the construction of the SAMs is organized on the basis of the structure of the Macro SAM (Appendix C). Accordingly, the raw unbalanced 2003 Macro SAM data set is provided in Appendix D and the derivation of each of these numbers is described in the following with reference to row and column accounts and entry labels in the Macro SAM. The discussion of the construction of the raw unbalanced 2003 Micro SAM is organized in the same way. Accordingly, the construction of the unbalanced Micro SAM may be viewed as a disaggregation of each of the individual Macro SAM entries. The construction of the Macro and Micro SAMs will therefore be discussed simultaneously in the following.

All data entries are given in value terms and measured in Billions of Vietnamese Dong (bio. VND). The main source of data is the Government Statistical Office (GSO). Accordingly, the main data sources for the construction of the unbalanced 2003 Macro SAM were the 2003 Vietnam SUT table (GSO; 2006a), the 2003 state budget (GSO; 2006b), the 2003 current account of the balance of payments (GSO 2006c), and a set of national accounts (GSO; 2006d). The main data sources for the subsequent construction of the unbalanced 2003 Micro SAM was the balanced Macro SAM (provide aggregate control totals for the disaggregation of the activity, commodity, marketing

margin, factor and household accounts, and input data for the remaining data entries), the 2003 Vietnam SUT (disaggregation of the production activity, retail commodity, and marketing margin accounts), and the 1998/99 Vietnam Living Standard Survey (disaggregation of the household sector).

The balancing of the raw unbalanced 2003 Macro SAM will be described in Sub-section 2.2, while the subsequent balancing of the raw unbalanced 2003 Micro SAM will be described in Sub-section 2.3. The balancing of the raw unbalanced Macro and Micro SAM matrices will be achieved by the use of the so-called minimum cross-entropy methodology (Golan, Judge & Robinson; 1994). This statistical methodology belongs to the Bayesian tradition, and it is typically used to extract information in a data-poor environment. The methodology is focussed on the cross-entropy distance measure, and the objective of the methodology is to minimize the distance between the prior and posterior data distribution subject to a set of moment conditions. In the case of an unbalanced Social Accounting Matrix, the initial unbalanced SAM is used as a prior unbalanced input to obtain a posterior balanced SAM matrix.

More specifically, the matrix shares of the unbalanced SAM is used as the prior data distribution, while the inherent accounting convention of the SAM, i.e. that row totals (income) must equal column totals (expenditure), are imposed as moment conditions. Since information on (i) GDP at market prices and (ii) government tax revenue items are considered to be of relatively high quality, these items are fixed through the specification of additional moment conditions.[4] Furthermore, intermediate consumption was fixed in the balancing of the Macro SAM in order to avoid uncertainty, which emanates in the government budget and the current account of the balance of payments, from spreading around to the activities account.

2.1 Construction of the unbalanced Macro SAM and the unbalanced Micro SAM

This sub-section provides detailed information about the origin of individual data entries in the construction of (i) the unbalanced Macro SAM, and (ii) the unbalanced Micro SAM.

Cell (1,2) "Activities-Commodities": Domestic Marketed Supply (bio. VND 1,173,608)

This Macro SAM entry of Doemstic Marketed Supply was derived residually to balance the Activities account in the Macro SAM.

The Micro SAM disaggregation of the Domestic Marketed Production matrix into a 112x112 matrix was based on the assumption that the goods which go into home consumption of own production comes from the parent production activity. Accordingly, the Domestic Marketed Supply matrix in the Micro SAM was derived by subtracting home consumption row totals (see derivation of home consumption below) from the diagonal elements of the make matrix from the 2003 SUT table (GSO; 2006b).

[4] GDP at market prices and government tax revenue totals were fixed in the balancing of the Macro SAM. GDP at market prices and government revenue totals were also imposed on the balancing of the Micro SAM. However, due to the elimination small flows and data inconsistencies there are small variations in the final estimate of GDP at market prices as well as the estimates of production tax revenues and import tariff revenues.

Cell (1,8) "Activities-Households": Private Home Consumption (bio. VND 67,234)

The Macro SAM entry of Private Home Consumption was derived from applying an aggregate home consumption share derived from the VLSS 1998/99 (VLSS; 2000), to aggregate private consumption published by the GSO (2006d).

The Micro SAM disaggregation of the Private Home Consumption entry into a 112x16 matrix was based on a two step procedure. First, disaggregate private consumption shares derived from the VLSS 1998/99 (GSO 2000) was used to share the 112x1 aggregate private consumption vector from the 2003 SUT table (GSO; 2006a) to derive an initial 112x16 private home consumption matrix and an initial 112x16 marketed consumption matrix. Subsequently, the final private home consumption matrix was derived by applying shares from the initial private home consumption matrix to the home consumption total derived from the balanced Macro SAM (Appendix E).

Cell (2,1) "Commodities-Activities": Intermediate Consumption (bio. VND 715,542)

The Macro SAM entry of Intermediate Consumption was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of Intermediate the Consumption entry into a 112x112 matrix was based on applying disaggregate intermediate consumption shares derived from the 2003 SUT table (GSO; 2006a) to aggregate intermediate consumption derived from the balanced Macro SAM (Appendix E).

Cell (2,3) "Commodities-Marketing Margins": Marketing Margins (use) (bio. VND 36,115)

The Macro SAM entry of Marketing Margins (use) was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Marketing Margins (use) entry into a 112x2 matrix was based on applying disaggregate shares for the use of commodities in respectively trade margins and transportation margins derived from the 2003 SUT table (GSO; 2006a), to aggregate marketing margins (use) derived from the balanced Macro SAM (Appendix E).

Cell (2,8) "Commodities-Households": Private Marketed Consumption (bio. VND 339,470)

The Macro SAM entry of Private Marketed Consumption as derived from applying an aggregate marketed consumption share derived from the VLSS 1998/99 (VLSS; 2000), to aggregate private consumption published by the GSO (2006d).

The Micro SAM disaggregation of the Private Marketed Consumption entry into a 112x16 matrix was based on a two step procedure. First, disaggregate private consumption shares derived from the VLSS 1998/99 (GSO 2000) was used to share the 112x1 aggregate private consumption vector from the 2003 SUT table (GSO; 2006a) to derive an initial 112x16 private home consumption matrix and an initial 112x16 marketed consumption matrix. Subsequently, the final private

marketed consumption matrix was derived by applying shares from the initial private marketed consumption matrix to aggregate private marketed consumption derived from the balanced Macro SAM (Appendix E).

Cell (2,9) "Commodities-Government": Government Consumption (bio. VND 37,797)

The Macro SAM entry of Government Consumption was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Government Consumption entry into a 112x1 matrix was based on applying disaggregate government consumption shares derived from the 2003 SUT table (GSO; 2006a) to aggregate government consumption derived from the balanced Macro SAM (Appendix E).

Cell (2,16) "Commodities-Private Inventories": Private Inventories (bio. VND 12,494)

The Macro SAM entry of Private Inventories was derived as the difference between total inventory changes from the 2003 national accounts (GSO; 2006d) and government inventory changes from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Private Inventories entry into a 112x1 matrix was based on applying disaggregate private inventories shares derived from the 2003 SUT table (GSO; 2006a) to aggregate private inventories derived from the balanced Macro SAM (Appendix E).

Cell (2,17) "Commodities-Government Inventories": Government Inventories (bio. VND 350)

The Macro SAM entry of Government Inventories was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Government Inventories entry into a 112x1 matrix was based on applying disaggregate government inventories shares derived from the 2003 SUT table (GSO; 2006a) to aggregate government inventories derived from the balanced Macro SAM (Appendix E).

Cell (2,18) "Commodities-Private Capital": Private Investment (bio. VND 158,305)

The Macro SAM entry of Private Investment was derived as the difference between total capital formation from the 2003 national accounts (GSO; 2006d) and government investment, which in turn was derived as the difference between government capital expenditures derived from the 2003 state budget (GSO; 2006b) and government inventory changes derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Private Investment entry into a 112x1 matrix was based on applying disaggregate private investment shares derived from the 2003 SUT table (GSO; 2006a) to aggregate private investment derived from the balanced Macro SAM (Appendix E).

Cell (2,19) "Commodities-Government Capital": Government Investment (bio. VND 46,657)

The Macro SAM entry of Government Investment was derived as the difference between government capital expenditures derived from the 2003 state budget (GSO; 2006b) and government inventory changes derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Government Investment entry into a 112x1 matrix was based on applying disaggregate government investment shares derived from the 2003 SUT table (GSO; 2006a) to aggregate government investment derived from the balanced Macro SAM (Appendix E).

Cell (2,21) "Commodities-Rest of the World": Exports (f.o.b.) (bio. VND 365,265)

The Macro SAM entry of Exports (f.o.b.) was derived from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM disaggregation of the Exports (f.o.b.) entry into a 112x1 matrix was based on applying disaggregate export shares derived from the 2003 SUT table (GSO; 2006a) to aggregate exports derived from the balanced Macro SAM (Appendix E).

Cell (3,2) "Marketing Margins-Commodities": Marketing Margins (make) (bio. VND 36,115)

The Macro SAM entry of Marketing Margins (make) was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Marketing Margins (make) entry into a 2x112 matrix was based on applying disaggregate shares for the make of respectively trade margins and transportation margins derived from the 2003 SUT table (GSO; 2006a), to aggregate marketing margins (make) derived from the balanced Macro SAM (Appendix E).

Cell (4,1) "Land-Activities": Land Value Added (bio. VND 27,230)

The Macro SAM entry of Land Value Added was derived by applying a land value added shares derived from the 2003 SUT (GSO; 2006a) to aggregate value added at factor cost, which was derived as the difference between GDP at market prices from the 2003 national accounts (GSO; 2006d) and total indirect tax payments including domestic indirect taxes and import tariffs from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Land Value Added entry into a 1x112 matrix was based on applying disaggregate shares for land value added derived from the 2003 SUT table (GSO; 2006a), to aggregate land value added derived from the balanced Macro SAM (Appendix E).

Cell (5,1) "Labor- Activities": Labor Value Added (bio. VND 295,942)

The Macro SAM entry of Labor Value Added was derived by applying a labor value added shares derived from the 2003 SUT table (GSO; 2006a) to aggregate value added at factor cost, which was derived as the difference between GDP at market prices from the 2003 national accounts (GSO; 2006d) and total indirect tax payments including domestic indirect taxes and import tariffs from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Labor Value Added entry into a 12x112 matrix was based on a two step procedure. First, the 1x112 labor value added matrix from the 2003 SUT table (GSO; 2006a) was disaggregated into an initial 12x112 labor value added matrix by applying sector-specific labor value added share derived from the VLSS 1998/99 (VLSS; 2000). Subsequently, the final 12x112 labor value added matrix was derived by applying shares from the initial labor value matrix to aggregate labor value added derived from the balanced Macro SAM (Appendix E).

Cell (5,21) "Labor-Rest of the World": Net Foreign Labor Factor Payments (bio. VND -106)

The Macro SAM entry of Net Foreign Labor Factor Payments was derived as the net compensation of employees from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM disaggregation of the Net Foreign Labor Factor Payments entry into a 12x1 matrix was derived by applying disaggregate shares derived from the 1998/99 VLSS (VLSS; 2000), to aggregate net foreign labor factor payments derived from the balanced Macro SAM (Appendix E). Since disaggregate information on foreign labor factor payments was not directly available from VLSS 1998/99, net foreign labor factor payments were disaggregated between skilled urban workers (male & female) based on relative foreign transfers to self-employed and wage-earning household groups.

Cell (6,1) "Capital- Activities": Capital Value Added (bio. VND 199,256)

The Macro SAM entry of Capital Value Added was derived by applying a capital value added shares derived from the 2003 SUT table (GSO; 2006a) to aggregate value added at factor cost, which was derived as the difference between GDP at market prices from the 2003 national accounts (GSO; 2006d) and total indirect tax payments including domestic indirect taxes and import tariffs from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Capital Value Added entry into a 1x112 matrix was based on applying disaggregate shares for capital value added derived from the 2003 SUT table (GSO; 2006a), to aggregate capital value added derived from the balanced Macro SAM (Appendix E).

Cell (6,21) "Capital-Rest of the World": Net Foreign Capital Factor Payments (bio. VND -9,730)

The Macro SAM entry of Net Foreign Capital Factor Payments was derived as net dividends from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM entry of Net Foreign Labor Factor Payments was derived from the balanced Macro SAM (Appendix E).

Cell (7,6) "Enterprises-Capital": Net Capital Factor Income (bio. VND 181,195)

The Macro SAM entry of Net Capital factor Income was derived residually as the difference between total capital factor income, including capital value added (cell (6,1)) and net foreign capital payments (cell (6,21)), and capital factor taxes which was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Net Capital Factor Income was derived from the balanced Macro SAM (Appendix E).

Cell (7,9) "Enterprises-Government": Government Transfers to Enterprises (bio. VND 16,303)

The Macro SAM entry of Government Transfers to Enterprises was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Government Transfers to Enterprises was derived from the balanced Macro SAM (Appendix E).

Cell (8,4) "Households-Land": Net Land Factor Income (bio. VND 22,721)

The Macro SAM entry of Net Land Factor Income was derived residually as the difference between land factor value added (cell (4,1)) and land factor taxes which was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Net Land Factor Income entry into a 16x1 matrix was derived by applying disaggregate shares for household land factor income derived from the 1998/99 VLSS (GSO; 2000), to aggregate land factor income derived from the balanced Macro SAM (Appendix E).

Cell (8,5) "Households-Labor": Net Labor Factor Income (bio. VND 295,836)

The Macro SAM entry of Net Labor Income was set equal to total labor factor income, including labor value added (cell (5,1)) and net foreign labor factor payments (cell (5,21)).

The Micro SAM disaggregation of the Net Labor Factor Income entry into a 16x12 matrix was derived by applying disaggregate shares for household labor factor income derived from the 1998/99 VLSS (GSO; 2000), to aggregate labor factor income derived from the balanced Macro SAM (Appendix E).

Cell (8,7) "Households-Enterprises": Distributed Profits to Households (bio. VND 100,737)

The Macro SAM entry of Distributed Profits to Households was derived by applying information on the distributed profits to households ratio (GSO; 2006e) to net enterprise income. Net enterprise income was derived as the difference between (i) enterprise income (net capital factor income (cell (7,4)) and net foreign capital factor payments (cell (7,21))) and (ii) the sum of enterprise tax payments derived from the 2003 state budget (GSO; 2006b) and enterprise foreign interest payments derived from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM disaggregation of the Distributed Profits to Households entry into a 16x1 matrix was derived by applying disaggregate shares for household capital factor income derived from the 1998/99 VLSS (GSO; 2000), to aggregate distributed profits to households derived from the balanced Macro SAM (Appendix E).

Cell (8,9) "Households-Government": Government Transfers to Households (bio. VND 46,755)

The Macro SAM entry of Government Transfers to Households was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Government Transfers to Households entry into a 16x1 matrix was derived by applying disaggregate shares for government transfers to households derived from the 1998/99 VLSS (GSO; 2000), to aggregate government transfers to households derived from the balanced Macro SAM (Appendix E).

Cell (8,21) "Households-Rest of the World": Net Foreign Transfers to Households (bio. VND 32,699)

The Macro SAM entry of Net Foreign Transfers to Households was set equal to private unrequited transfers from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM disaggregation of the Net Foreign Transfers to Households entry into a 16x1 matrix was derived by applying disaggregate shares for foreign transfers to households derived from the 1998/99 VLSS (GSO; 2000), to aggregate foreign transfers to households derived from the balanced Macro SAM (Appendix E).

Cell (9,7) "Government-Distributed Profits to Government": Distributed Profits to Government (bio. VND 3,881)

The Macro SAM entry of Distributed Profits to Government was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Distributed Profits to Government was derived from the balanced Macro SAM (Appendix E).

Cell (9,10) "Government-Production Tax": Production Tax Revenues (bio. VND 2,872)

The Macro SAM entry of Production Tax Revenues was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM entry of Production Tax Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,11) "Government-Sales Tax": Sales Tax Revenues (bio. VND 67,410)

The Macro SAM entry of Sales Tax Revenues was derived as the difference between total domestic indirect taxes from the 2003 state budget (GSO; 2006b), and production tax revenues (cell (9,10)).

The Micro SAM entry of Sales Tax Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,12) "Government-Import Tariff": Import Tariff Revenues (bio. VND 20,733)

The Macro SAM entry of Import Tariff Revenues was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Import Tariff Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,13) "Government-Factor Tax": Factor Tax Revenues (bio. VND 12,841)

The Macro SAM entry of Factor Income Revenues was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Factor Income Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,14) "Government- Enterprise Tax": Enterprise Tax Revenues (bio. VND 14,645)

The Macro SAM entry of Enterprise Tax Revenues was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Enterprise Tax Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,15) "Government- Household Tax": Household Tax Revenues (bio. VND 8,125)

The Macro SAM entry of Household Tax Revenues was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Household Tax Revenues was derived from the balanced Macro SAM (Appendix E).

Cell (9,21) "Government-Rest of the World": Net Foreign Transfers to Government (bio. VND 1,958)

The Macro SAM entry of Net Foreign Transfers to Government was set equal to government unrequited transfers from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM entry of Net Foreign Transfers to Government was derived from the balanced Macro SAM (Appendix E).

Cell (10,1) "T1-Activities": Production Taxes (bio. VND 2,872)

The Macro SAM entry of Production Taxes was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Production Taxes entry into a 112x1 matrix was derived by applying disaggregate shares for production taxes derived from the 2003 SUT table (GSO; 2006a), to aggregate production taxes derived from the balanced Macro SAM (Appendix E).

Cell (11,2) "T2-Commodities": Sales Taxes (bio. VND 67,410)

The Macro SAM entry of Sales Taxes was derived as the difference between total domestic indirect taxes from the 2003 state budget (GSO; 2006b), and the sum of production tax revenues from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Sales Taxes entry into a 112x1 matrix was derived by applying disaggregate shares for domestic indirect goods taxes derived from the 2003 SUT table (GSO; 2006a), to aggregate sales taxes derived from the balanced Macro SAM (Appendix E).

Cell (12,2) "T3-Commodities": Import Tariffs (bio. VND 20,733)

The Macro SAM entry of Import Tariffs was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM disaggregation of the Import Tariffs entry into a 112x1 matrix was derived by applying disaggregate shares for import tariffs derived from the 2003 SUT table (GSO; 2006a), to aggregate import tariffs derived from the balanced Macro SAM (Appendix E).

Cell (13,4) "T4-Land": Land Factor Taxes (bio. VND 4,509)

The Macro SAM entry of Land Factor Taxes was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Land Factor Taxes was derived from the balanced Macro SAM (Appendix E).

Cell (13,6) "T4-Capital": Capital Factor Taxes (bio. VND 8,332)

The Macro SAM entry of Land Capital Taxes was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Land Capital Taxes was derived from the balanced Macro SAM (Appendix E).

Cell (14,7) "T5-Enterprises": Enterprise Taxes (bio. VND 14,645)

The Macro SAM entry of Enterprise Taxes was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Enterprise Taxes was derived from the balanced Macro SAM (Appendix E).

Cell (15,8) "T6-Households": Household Taxes (bio. VND 8,125)

The Macro SAM entry of Household Taxes was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM disaggregation of the Household Taxes entry into a 1x16 matrix was derived by applying disaggregate shares for household tax payments derived from the 1998/99 VLSS (VLSS; 2000), to aggregate household taxes derived from the balanced Macro SAM (Appendix E).

Cell (16,18) "Private Inventories-Private Capital": Private Inventory Changes (financing) (bio. VND 12,494)

The Macro SAM entry of Private Inventory Changes (financing) was derived as the difference between total inventory changes from the 2003 national accounts (GSO; 2006d) and government inventory changes from the 2003 SUT table (GSO; 2006a).

The Micro SAM entry of Private Inventory Changes (financing) was derived from the balanced Macro SAM (Appendix E).

Cell (17,19) "Government Inventories-Government Capital": Government Inventory Changes (financing) (bio. VND 350)

The Macro SAM entry of Government Inventory Changes (financing) was derived from the 2003 SUT table (GSO; 2006a).

The Micro SAM entry of Government Inventory Changes (financing) was derived from the balanced Macro SAM (Appendix E).

Cell (18,7) "Private Capital-Enterprises": Enterprise Retained Earnings (bio. VND 78,430)

The Macro SAM entry of Enterprise Retained Earnings was derived residually as the difference between (i) enterprise income including net capital factor income (cell (7,6)) and net foreign capital factor payments (cell (7,21)), and (ii) other enterprise expenditures including distributed profits to households (cell (8,7)), distributed profits to government (cell (9,7)), enterprise taxes (cell (14,7)), and enterprise net enterprise foreign interest payments which were derived from the 2003 current account of the balance of payments (GSO; 2006c)..

The Micro SAM entry of Enterprise Retained Earnings was derived from the balanced Macro SAM (Appendix E).

Cell (18,8) "Private Capital-Households": Household Savings (bio. VND 83,918)

The Macro SAM entry of Household Savings was derived residually as the difference between (i) household income including net land value added (cell (8,4)), net labor value added (cell (8,5)), distributed profits to households (cell (8,7)), government transfers to households (cell (8,9)), and net foreign transfers to households (cell (8,21)), and (ii) other household expenditures including private home consumption (cell (1,8)), private marketed consumption (cell (2,8)), and household taxes (cell (15,8)).

The Micro SAM disaggregation of the Household Savings entry into a 1x16 matrix was derived by applying disaggregate shares for household savings derived from the 1998/99 VLSS (VLSS; 2000), to aggregate household savings derived from the balanced Macro SAM (Appendix E).

Cell (18,20) "Private Capital-Aggregate Capital": Private Financing Requirement (bio. VND 8,451)

The Macro SAM entry of Private Financing Requirement was derived residually as the difference between (i) private capital account expenditures including private investment (cell (2,18)) and private inventory changes (financing) (cell (16,18)), and (ii) private capital account income including enterprise retained earnings (cell (18,7)) and household savings (cell (18,8)).

The Micro SAM entry of the Private Financing Requirement was derived from the balanced Macro SAM (Appendix E).

Cell (19,9) "Government Capital-Government": Government Savings (bio. VND 28,214)

The Macro SAM entry of Government Savings was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Government Savings was derived from the balanced Macro SAM (Appendix E).

Cell (19,20) "Government Capital-Aggregate Capital": Government Borrowing Requirement (bio. VND 18,793)

The Macro SAM entry of Government Borrowing Requirement was derived residually as the difference between (i) government capital account expenditures including government investment (cell (2,19)) and government inventory changes (financing) (cell (17,19)), and (ii) government capital account income including government savings (cell (19,9)).

The Micro SAM entry of the Government Borrowing Requirement was derived from the balanced Macro SAM (Appendix E).

Cell (20,21) "Aggregate Capital-Rest of the World": Current Account Deficit (bio. VND 27,244)

The Macro SAM entry of the Current Account Deficit was derived from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM entry of Current Account Deficit was derived from the balanced Macro SAM (Appendix E).

Cell (21,2) "Rest of the World-Commodities": Imports (c.i.f.) (bio. VND 414,130)

The Macro SAM entry of Imports (c.i.f.) was derived from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM disaggregation of the Imports (c.i.f.) entry into a 1x112 matrix was based on applying disaggregate import shares derived from the 2003 SUT table (GSO; 2006a) to aggregate imports derived from the balanced Macro SAM (Appendix E).

Cell (21,7) "Rest of the World-Enterprises": Net Enterprise Foreign Interest Payments (bio. VND -195)

The Macro SAM entry of the Net Enterprise Foreign Interest Payments was derived from the 2003 current account of the balance of payments (GSO; 2006c).

The Micro SAM entry of Net Enterprise Foreign Interest Payments was derived from the balanced Macro SAM (Appendix E).

Cell (21,9) "Rest of the World-Government": Net Government Foreign Interest Payments (bio. VND 3,396)

The Macro SAM entry of the Net Government Foreign Interest Payments was derived from the 2003 state budget (GSO; 2006b).

The Micro SAM entry of Net Government Foreign Interest Payments was derived from the balanced Macro SAM (Appendix E).

Table 1. Unbalanced Macro SAM imbalances (bio. VND)

Account	Row Total	Column Total	Imbalance
ACTIVITIES	1,240,842	1,240,842	0
COMMODITIES	1,709,951	1,713,019	-3,068
MARKETING MARGINS	36,091	36,091	0
LAND	27,229	27,229	0
LABOR	295,827	295,827	0
CAPITAL	189,507	189,507	0
ENTERPRISES	197,483	197,483	0
HOUSEHOLDS	498,560	498,560	0
STATE	132,449	132,500	-51
T01	2,872	2,872	0
T02	67,410	67,410	0
T03	20,733	20,733	0
T04	12,841	12,841	0
T05	14,645	14,645	0
T06	8,125	8,125	0
PRIVATE INVENTORIES	12,476	12,476	0
GOVERNMENT INVENTORIES	350	350	0
PRIVATE CAPITAL	170,434	170,434	0
GOVERNMENT CAPITAL	47,000	47,000	0
AGGREGATE CAPITAL	28,839	26,753	2,086
REST OF THE WORLD	418,387	417,354	1,033

2.2 The Balanced 2003 Vietnam Macro SAM

This sub-section discusses the balancing of the raw unbalanced 2003 Vietnam Macro SAM. The initial imbalances in the Vietnam Macro SAM are shown in Table 1. The largest absolute imbalance occurs in the commodities account (bio. VND -3,608). This imbalance arises since the data used in the construction of the commodities account stem from different data sources: GDP at market prices, aggregate consumption, aggregate inventory changes, and aggregate capital formation is derived from the 2003 national accounts (GSO; 2006d), intermediate consumption and domestic supply are derived from the 2003 SUT table (GSO; 2006a), and imports and exports are derived from the 2003 current account of the balance of payments (GSO; 2006c).

The imbalance in the aggregate capital account (bio. VND 2,086) arises since savings aggregates and financing requirements are derived from different data sources. The government borrowing requirement is derived from the 2003 state budget (GSO; 2006c) while the private financing requirement is derived residually from the private sector capital account. However, these financing requirements have to be balanced against the foreign savings inflow, which is derived from the 2003 current account of the balance of payments (GSO; 2006c). The imbalance in the aggregate capital account therefore arise from inconsistencies between the data sources underlying the private sector budget, the 2003 state budget (GSO; 2006b) and the 2003 current account of the balance of payments (GSO; 2006c)

There is also a minor imbalance in the government budget account (bio. VND -51). The construction of the unbalanced SAM, as outlined in section 2.1, implies that all government budget items except government foreign transfers have been imposed as they appear in the 2003 state budget (GSO; 2006b). The minor imbalance in the government budget therefore arises since government foreign transfers is recorded as being slightly higher in the current account of the balance of payments (bio. VND 1,949) compared to the state budget (bio. VND 2,000).

Finally, there is an imbalance in the Rest of the World account (bio. VND 1,033). The construction of the unbalanced SAM, as outlined in section 2.1, implies that all items in the rest of the world account, except government foreign interest payments, are derived from the 2003 current account of the balance of payments (GSO; 2006c). It follows that the imbalance in the rest of the world account arises since government foreign interest payments from the state budget (bio. Dong 3,408) is higher compared to the government foreign interest payments which were recorded in the current account of the balance of payments (bio. VND 2,375).

The balancing of the prior raw unbalanced Macro SAM matrix is achieved by the use of the so-called minimum cross-entropy methodology (Golan, Judge & Robinson; 1994). As discussed above, the matrix shares of the unbalanced Macro SAM is used as the prior data distribution to derive a posterior balanced Macro SAM. Since information on (i) GDP at market prices and (ii) government tax revenue are considered to be of relatively high quality, these items are fixed through the specification of additional moment conditions. Furthermore, intermediate consumption was fixed in order to avoid uncertainty surrounding the government budget and the current account of the balance of payments, from spreading around to the activities account. The application of this methodology leads to the balanced 2003 Macro SAM which is presented in Appendix E.

Relative percentage deviations between the prior unbalanced 2003 Macro SAM (Appendix D) and the posterior balanced 2003 Macro SAM (Appendix E) are recorded in Appendix F. It can be seen

that the largest relative deviations occurs in the aggregate capital account and the rest of the world account. In particular, the private financing requirement has been increased by 6.2 percent while the current account deficit has been reduced by 5.5 percent. The reduction in the current account deficit is accompanied by a 0.4 percent increase in exports and a 0.3 percent reduction in imports. Accordingly, the balancing procedure points to a relative overestimation of the trade balance deficit (which was taken from the 2003 current account of the balance of payments (GSO; 2006c))) as the most likely reason for the combination of imbalances in the rest of the world account and the commodities account.

In addition, the balancing procedure points to an underestimation of the private financing requirement and an overestimation of the current account deficit (which was also taken from the 2003 current account of the balance of payments (GSO; 2006c))) as the most likely reasons for the combined imbalances in the aggregate capital account and the rest of the world account. Finally, it may be noted that the 6.2 percent increase in the private financing requirement is accompanied by a 0.2 percent increase in private investment, which also helps to balance the commodities account. In general, it may be concluded that the balancing procedure has traced the main data problems to the private capital account and the rest of the world account.[5] In particular, the main data problems were traced to the trade balance deficit, the current account deficit (of the balance of payments), and the private sector financing requirement.

Table 2. Unbalanced Micro SAM imbalances (percent)

Account	Minimum deviation	Maximum deviation
ACTIVITIES	-1.5%	2.7%
COMMODITIES	-13.7%	93.4%
MARKETING MARGINS	0.0%	0.0%
LAND	0.0%	0.0%
LABOR	-57.5%	72.4%
CAPITAL	0.0%	0.0%
ENTERPRISES	0.0%	0.0%
HOUSEHOLDS	-34.4%	68.8%
STATE	0.0%	0.0%
T01	0.0%	0.0%
T02	0.0%	0.0%
T03	0.0%	0.0%
T04	0.0%	0.0%
T05	0.0%	0.0%
T06	0.0%	0.0%
PRIVATE INVENTORIES	0.0%	0.0%
GOVERNMENT INVENTORIES	0.0%	0.0%
PRIVATE CAPITAL	0.0%	0.0%
GOVERNMENT CAPITAL	0.0%	0.0%
AGGREGATE CAPITAL	0.0%	0.0%
REST OF THE WORLD	0.0%	0.0%

[5] This is partly to be expected, since many GDP items and government revenue items are fixed through the specification of moment conditions.

2.3 The Balanced 2003 Vietnam Micro SAM

This sub-section discusses the balancing of the unbalanced 2003 Vietnam Micro SAM. There are only five accounts which are disaggregated between the Macro SAM and the Micro SAM, i.e. the activity account (112 accounts), the commodity account (112 accounts), the marketing margins account (six accounts), the labor factor account (12 accounts), and the households account (16 accounts). Due to the particular methodology of this study, where the balanced Macro SAM totals are imposed as control totals for the construction of the unbalanced Micro SAM, it follows that all other accounts will be balanced. Accordingly, row and column totals will only deviate from each other in the five accounts which are to be disaggregated.

It may be noticed that deviations between row and column totals are relatively small among the 112 activities accounts. The reason is that the numbers mainly stem from the same data source, namely the 2003 SUT table (GSO; 2006a). Imbalances arise since the balancing of the Macro SAM allowed for minor changes in the relative composition of value added at factor cost, i.e. in the relative size of land value added, labor value added, and capital value added. Accordingly, applying shares from the SUT table to distribute macro totals, which have changed somewhat (see appendix F), implies that small deviations will arise for each of the 112 individual activity accounts. The maximum deviation amounts to 2.7 percent, while the minimum deviation amounts to -1.5 percent.

In contrast, Table 2 indicates that large relative deviations occur among other accounts. Among the 112 commodities accounts, the maximum deviation amounts to 93.4 percent while the minimum deviation amounts to -13.7 percent. The maximum deviation among the commodities accounts seems relatively large. Closer inspection shows that there are two accounts where relative deviations are very large, namely “poultry” (+93.4 percent) and “other livestock” (+89.6 percent). In addition, there is one other account where absolute deviation exceeds 20 percent, namely “processed rice” (+45.3 percent). Altogether, there are four commodity accounts where the deviation exceeds 10 percent and five commodity accounts where the deviation drops below -10 percent.

Table 3. Labor Factor Account Deviations (bio. VND)

Account	Row Total	Column Total	Imbalance
Labour Rural Male Uneducated	74,992	89,611	-14,619
Labour Rural Male Medium Education	8,704	20,467	-11,763
Labour Rural Male High Education	1,410	994	417
Labour Rural Female Uneducated	64,375	65,424	-1,049
Labour Rural Female Medium Education	7,472	7,209	263
Labour Rural Female High Education	1,211	839	371
Labour Urban Male Uneducated	45,662	36,036	9,626
Labour Urban Male Medium Education	20,447	18,328	2,120
Labour Urban Male High Education	11,263	10,583	680
Labour Urban Female Uneducated	35,592	29,138	6,454
Labour Urban Female Medium Education	15,938	12,119	3,819
Labour Urban Female High Education	8,770	5,087	3,682

The three above mentioned accounts with relatively large row totals (marketed demand) compared to column totals (marketed supply) are all characterised as goods which are primarily consumed out

of own production. Accordingly, the three types of goods including “poultry”, “other livestock”, and “processed rice” accounts for 45 percent of total home consumption. This seems to suggest that either (i) home consumption of own production is significantly underestimated in the 2003 SUT table, or (ii) the size or pattern of home consumption has changed between 1998/99 (the time of data collection for the 1998/99 VLSS) and 2003 (the base year for the SUT table).

Turning to the factor accounts, the land and capital factor accounts continue to be balanced. This is due to the particular methodology used for this study and because these primary factors were accounted for separately in the Macro SAM. Nevertheless, large deviations seem to occur in the labor factor accounts. The minimum deviation is -57.5 percent (rural male workers with medium education) while the maximum deviation is +72.4 percent (urban female workers with high education). The absolute deviations for the individual labor factor accounts are presented in Table 3, and they indicate that the largest negative deviations are associated with rural male workers (uneducated or with medium education), while the largest positive deviations are associated with urban uneducated workers. This seems to suggest that either (i) the share of rural agricultural value added creation is overestimated in the 1998/99 VLSS survey, or (ii) rural agricultural value added is underestimated in the 2003 SUT table. Interestingly, the significant underestimation of rural value added creation seems to be concentrated among male workers. Accordingly, there seems to be a relatively close match between value added creation among rural female workers (row totals) and households factor income receipts from these factor categories (column totals). This observed pattern may seem like a puzzle. On the other hand, the general tendency for value added creation by urban workers (row totals) to exceed household factor income receipts from these workers (column totals) again seems to suggest that (i) urban non-agricultural value added is underestimated in the 2003 SUT table, or (ii) the share of urban non-agricultural value added creation is underestimated in the 1998/99 VLSS.

Table 4. Household Account Deviations (bio. VND)

Account	Row Total	Column Total	Imbalance
Household Rural Male Farmer Head	137,990	164,475	-26,485
Household Rural Male Self-employed Head	60,675	46,515	14,160
Household Rural Male Wage-earner Head	28,105	30,508	-2,403
Household Rural Male Non-employed Head	628	709	-82
Household Rural Female Farmer Head	27,720	33,597	-5,877
Household Rural Female Self-employed Head	13,712	9,333	4,379
Household Rural Female Wage-earner Head	4,912	4,922	-10
Household Rural Female Non-employed Head	302	460	-158
Household Urban Male Farmer Head	14,096	12,025	2,071
Household Urban Male Self-employed Head	79,908	59,159	20,749
Household Urban Male Wage-earner Head	50,750	57,848	-7,098
Household Urban Male Non-employed Head	1,341	1,561	-219
Household Urban Female Farmer Head	6,168	6,075	93
Household Urban Female Self-employed Head	43,166	38,000	5,166
Household Urban Female Wage-earner Head	25,921	31,575	-5,654
Household Urban Female Non-employed Head	3,354	1,987	1,367

Finally, relative deviations in the household accounts vary from a minimum deviation of -34.4 percent (rural households with a non-employed female head) to a maximum deviation of 68.8 percent (urban households with a non-employed female head). Nevertheless, the above mentioned non-employed household groups are also relatively insignificant in terms of income and expenditure.

Table 4 shows the household income and expenditure patterns including row totals (income) and column totals (expenditure), and the main patterns seem to include that income is underestimated for rural households where the head is occupied as farmer, underestimated for all households where the head is a wage-earner, and overestimated for all households where the head is self-employed. Since urban households with farmer heads are relatively insignificant, it may generally be concluded that income is underestimated relative to expenditure for households with farmer or wage-earner heads and overestimated for households with self-employed heads. Since households with a self-employed head receives relatively large shares of enterprise distributed profits, these patterns seem to suggest that (i) the share of capital value added is overestimated in the 2003 SUT table, (ii) the share of capital value added is underestimated in the 1998/99 VLSS, or (iii) the share of capital value added has increased between 1998/99 and 2003.

While deviations remain relatively large for some of the above mentioned accounts, it was nevertheless deemed as a reasonable starting point for the cross-entropy balancing procedure. The aggregate version of the balanced 2003 Micro SAM is presented in Appendix G, and deviations from the balanced 2003 Macro SAM are provided in Appendix H. First of all, it may be noticed that GDP at market prices are virtually unchanged – it declines by 0.005 percent. It may also be noticed that only minor changes occur for a couple of government tax revenue items, while the remainder remains unchanged.[6] In contrast, larger changes include a 4.4 percent increase in land value added creation, a 0.5 percent increase in labor value added creation, and a 1.3 percent reduction in capital value added creation. The switch in the composition of GDP at factor cost is also reflected in a switch in household income sources, away from enterprise distributed profits (-4.3 percent), towards land factor income (+5.3 percent) and labor factor income (+0.5 percent). Accordingly, the balancing procedure points to a relative overestimation of capital value added creation and a relative underestimation of labor and land value added creation as the most likely reason for the combination of imbalances in labor factor and household accounts.

Other relative large changes occur in relation to the nature of private consumption. Accordingly, home consumption declines by 7.4 percent while marketed consumption increased by 1.3 percent. This switch in consumption pattern is accompanied by a 0.3 percent increase in marketed production. The switch in consumption patterns away from home consumption towards marketed consumption is clearly linked to the relatively large undersupply of marketed goods in e.g. the "poultry", "other livestock", and "processed rice" commodities groups. Accordingly, the balancing procedure points to a relative overestimation of home consumption, as the most likely reason for the relatively large imbalances which occur in some selected commodities accounts.

It may also be noted that government consumption is reduced by 3.2 percent, while government transfers to households are increased by 4.8 percent. In this instance, the balancing procedure seems to identify overestimation of the demand for government expenditure items (with a relatively high

[6] Small changes occur for production tax revenues and import tariff revenues, due to the elimination of small and inconsistent flows from the SAM. However, sales tax revenues, factor tax revenues, enterprise revenues and household tax revenues remain unchanged from the Macro SAM.

content of urban labor value added) and underestimation of government transfers to households as one of the likely reasons for the combined underestimation of value added by rural agricultural labor and overestimation of value added by urban labor, which was identified above.

Finally, it may be noted that the twin trade and current account deficits are further reduced in the balancing of the Micro SAM (which also happened in the balancing of the Macro SAM). Exports increase by 0.4 percent, imports declines by 0.1 percent, and the current account deficit is reduced by 0.6 percent. Moreover, the reductions in the twin deficits are also accompanied by a 3.9 percent reduction in foreign transfers to households as well as a 1.0 percent increase in domestic savings by enterprises (to compensate for the reduction in foreign savings inflows). Accordingly, the balancing procedure seems to point to underestimation of export goods (with a relatively high content of rural labor value added) and overestimation of foreign transfers and distributed profits to households as the main reasons for the overestimation of income receipts for households with self-employed heads.

3. Conclusion

The current document has presented the construction of a Vietnam Social Accounting Matrix for the year 2003. The SAM matrix contains 275 accounts including 112 production activity accounts, 112 retail commodity accounts, three transportation margins accounts (export, imports and domestically marketed production), three trade margins accounts (exports, imports, and domestically marketed production), 14 production factor accounts (one land factor account, 12 labor factor accounts disaggregated across rural/urban location, sex, and educational level (uneducated/medium education/high education), and one capital factor account), one enterprise sector account, 16 household group accounts (disaggregated across rural/urban location as well as the sex (male/female) and the type of employment (farmer, self-employed, wage-earner, non-employed) for the head of household), seven government current budget accounts, two inventory accounts (private and public inventory accounts), three capital accounts (private, public and aggregate capital accounts), one rest of the world account, and one totals account.

The main sources of data for the construction of the unbalanced 2003 Macro SAM were the 2003 Vietnam SUT table (GSO; 2006a), the 2003 state budget (GSO; 2006b), the 2003 current account of the balance of payments (GSO; 2006c), and the 2003 national accounts (GSO; 2006d). The initial Macro SAM was unbalanced since data entries were derived from different data sources. A small imbalance occurred in *the government budget account* since government foreign transfers were recorded differently between the current account of the balance of payments and the state budget institutional accounts. Similarly, an imbalance occurred in *the rest of the world account* since government foreign interest payments were recorded differently between the same two institutional accounts. A relatively large absolute imbalance occurred in *the commodities account*, since data were pieced together from inconsistent data sources: domestic national accounts data from the national accounts compilation, trade aggregates from the balance of payments compilation, and intermediate consumption from the 2003 SUT table. Finally, an imbalance arose in *the aggregate capital account.*

The balancing of the Macro SAM was achieved using the minimum cross-entropy methodology. The balancing of the Macro SAM matrix involved relatively large adjustments in the aggregate capital account and the rest of the world account. In particular, the twin trade balance and current account deficits were reduced while the private sector financing requirement (private sector budget

deficit) was increased. In this way, the balancing procedure pointed to a relative overestimation of the twin external deficits and a relative underestimation of the private sector financing requirement as the most likely reasons for the combination of imbalances in the commodities account, the rest of the world account, and the aggregate capital account.

The main data sources for the subsequent construction of the unbalanced 2003 Micro SAM was the balanced 2003 Vietnam Macro SAM, the 2003 Vietnam SUT (GSO; 2003a), and the 1998/99 Vietnam Living Standard Survey (VLSS; 2000). The initial Micro SAM included unbalanced micro accounts among production activities, retail commodities, primary factor accounts, and household group accounts. The remaining set of accounts remained balanced from the outset, since data were imposed from the balanced Macro SAM. Small deviations characterised the 112 activities accounts. However, larger relative imbalances did occur among the 112 commodities accounts. Three commodities accounts, including "poultry", "other livestock", and "processed rice", were characterised by particularly large undersupplies of marketed commodities. At the same time, these three commodities account for almost half of total home consumption. Since the distribution of home consumption was derived from the 1998/99 VLSS, these imbalances seems to suggest that either (i) home consumption of own production has not been taken into account in the estimation of the 2003 SUT table, (ii) home consumption of own production is overestimated in the 1998/99 VLSS, or (iii) the pattern of home consumption has changed between 1998/99 and 2003.

Large absolute imbalances also occurred among the 12 labor factor accounts. The largest negative imbalances were associated with rural male (uneducated and medium educated) workers while the largest positive deviations were associated with urban uneducated workers. This seem to suggest that either (i) the share of rural agricultural value added creation is overestimated in the 1998/99 VLSS survey, (ii) rural agricultural value added is underestimated in the 2003 SUT table, or (iii) the pattern of value added has changed between 1998/99 and 2003.

Large absolute deviations also occurred among the 16 household group accounts in the unbalanced Micro SAM. In particular, income seemed to be underestimated relative to expenditure for households with farmer or wage-earner heads and overestimated for households with self-employed heads. Since households with a self-employed head receives relatively large shares of enterprise distributed profits, these patterns seem to suggest that (i) the share of capital value added is overestimated in the 2003 SUT table, (ii) the share of capital value added is underestimated in the 1998/99 VLSS, or (iii) the share of capital value added has increased between 1998/99 and 2003.

The balancing of the Micro SAM was also achieved using the minimum cross-entropy methodology. The balancing of the Micro SAM matrix involved a switch in the composition of GDP at factor cost, including a large relative reduction in capital value added and increasing value added for labor and land. This switch was also reflected in a switch in household income sources away from enterprise distributed profits, towards land and labor factor income. Accordingly, the balancing procedure points to a relative overestimation of capital value added creation and a relative underestimation of labor and land value added creation as the most likely reason for the combination of imbalances in the labor factor accounts and the household group accounts.

The balancing of the Micro SAM matrix also involved a switch in private consumption away from home consumption towards marketed consumption. This switch is linked to the relatively large undersupply of marketed goods in the "poultry", "other livestock", and "processed rice" commodities. Accordingly, the balancing procedure points to a relative overestimation of home

consumption, as the most likely reason for the relatively large imbalances which occur in a few selected commodities accounts. Finally, the balancing of the Micro SAM matrix involved further reductions in the twin trade and current account deficits.

Overall, it may be concluded that several instances of important data inconsistencies exist between available data sources. In particular, there seems to important inconsistencies between the national accounts and the balance of payments. These inconsistencies seem to point towards the potential overestimation of the twin external deficits in the 2003 current account of the balance of payments (GSO; 2006c). In addition, several large inconsistencies between the 2003 SUT and the 1998/99 VLSS survey have been identified, including the relative shares of home consumed items in private consumption and the relative share of capital value added in total value added creation. The balancing procedure point towards the potential overestimation of capital value added, which was derived from the 2003 SUT table (GSO; 2006a) as well as the potential overestimation of home consumption, which was derived from the 1998/99 VLSS (VLSS; 2000).

Nevertheless, the current 2003 Vietnam SAM represents an important advance over earlier attempts to construct a SAM for Vietnam, e.g. Nielsen (2002) and Jensen, Rand & Tarp (2004). In particular, this SAM has been constructed on the basis of a recently developed 2003 SUT table, which includes a non-diagonal make matrix as well as separate public sector accounts for inventory and capital expenditures. The non-diagonal make matrix implies that production activities are allowed to produce more than one commodity. Moreover, keeping separate accounts for public inventory and capital expenditures means that the 2003 SAM will include a fuller and more appropriate description of private and public sector budgets, as well as their relative pull on foreign resources for capital accumulation purposes.

However, the most important advantage of the 2003 SAM is that the aggregate marketing margins account have been separated into respectively trade margins and transportation margins accounts. This has been made possible since the 2003 SUT table accounts separately for these two types of marketing margins. Keeping separate accounts represents an important new feature, which has not been seen in previous SAM work. Other attempts to account separately for marketing margins include Arndt, Cruz, Jensen, Robinson & Tarp (1998), Wobst (1998), and Thomas & Bautista (1999). These studies account separately for marketing margins related to exports, imports, and domestically marketed goods. However, none of the data sets account separately for trade margins and transportation margins. The current 2003 Vietnam SAM therefore represents an important advance in SAM construction methodology as well as in the understanding of the structure of the Vietnamese economy.

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Appendix A: Dimensions of the 2003 Vietnam Macro SAM

Table A.1. Dimensions of the 2003 Macro SAM

ACT	Activities
COM	Commodities
MRG	Margins
LAND	Land
LAB	Labor
CAP	Capital
ENT	Enterprises
HH	Households
GOV	Government
T1	Production taxes
T2	Sales taxes
T3	Import tariffs
T4	Factor taxes
T5	Enterprise taxes
T6	Household taxes
PINV	Private inventories
GINV	Government inventories
PCAP	Private capital
GCAP	Government capital
ACAP	Aggregate capital
ROW	Rest of the World
TOTAL	Total

Appendix B: Dimensions of the 2003 Vietnam Micro SAM

Table A.1. Dimensions of the 2003 Micro SAM

ACTIVITIES	ACT001	Paddy (all kinds)
	ACT002	Raw rubber
	ACT003	Coffee beans
	ACT004	Sugarcane
	ACT005	Tea
	ACT006	Other crops
	ACT007	Pig (All kinds)
	ACT008	Cow (All kinds)
	ACT009	Poultry
	ACT010	Other livestock
	ACT011	Irrigation service
	ACT012	Other agricultural services
	ACT013	Forestry
	ACT014	Fishery
	ACT015	Fish-Farming
	ACT016	Coal
	ACT017	Metallic ore
	ACT018	Stone
	ACT019	Sand, gravel
	ACT020	Other none-metallic minerals
	ACT021	Crude oil, natural gas (except exploration)
	ACT022	Processed, preserved meat and by-products
	ACT023	Processed vegetable, and animals oils and fats
	ACT024	Milk, butter and other dairy products
	ACT025	Cakes, jams, candy, coca, chocolate products
	ACT026	Processed and preserved fruits and vegetables
	ACT027	Alcohol, beer and liquors
	ACT028	Beer and liquors
	ACT029	Non-alcohol water and soft drinks
	ACT030	Sugar, refined
	ACT031	Coffee, processed
	ACT032	Tea, processed
	ACT033	Cigarettes and other tobacco products
	ACT034	Processed seafood and by-products
	ACT035	Rice, processed
	ACT036	Other food manufactures
	ACT037	Glass and glass products
	ACT038	Ceramics and by-products
	ACT039	Bricks, tiles
	ACT040	Cement
	ACT041	Concrete, mortar and other cement products
	ACT042	Other building materials
	ACT043	Paper pulp and paper products and by-products
	ACT044	Processed wood and wood products

ACT045	Basic organic chemicals
ACT046	Basic inorganic chemicals
ACT047	Chemical fertilizer
ACT048	Fertilizer
ACT049	Pesticides
ACT050	Veterinary medicine
ACT051	Health medicine
ACT052	Processed rubber and by-products
ACT053	Soap, detergents
ACT054	Perfumes and other toilet preparations
ACT055	Plastic (including semi-plastic products)
ACT056	Other plastic products
ACT057	Paint
ACT058	Ink, varnish and other painting materials
ACT059	Other chemical products
ACT060	Health instrument and apparatus
ACT061	Precise and optics equipment, meter (all kinds)
ACT062	Home appliances and its spare parts
ACT063	Motor vehicles, motor bikes and spare parts
ACT064	Bicycles and spare parts
ACT065	General-purpose machinery
ACT066	Other general - purpose machinery
ACT067	Other special-purpose machinery
ACT068	Automobiles
ACT069	Other transport means
ACT070	Electrical machinery
ACT071	Other electrical machinery and equipment
ACT072	Machinery used for broadcasting, television and information activities
ACT073	Non-ferrous metals and products
ACT074	Ferrous metals and products (except machinery equipment)
ACT075	Weaving of cloths (all kinds)
ACT076	Fibber, thread (all kinds)
ACT077	Ready-made clothes, sheets (all kinds)
ACT078	Carpets
ACT079	Weaving and embroidery of textile-based goods (except carpets)
ACT080	Products of leather tanneries
ACT081	Leather goods
ACT082	Animal feeds
ACT083	Products of printing activities
ACT084	Products of publishing house
ACT085	Other physical goods
ACT086	Gasoline, lubricants (already refined)
ACT087	Electricity, gas
ACT088	Water
ACT089	Civil construction
ACT090	Other construction

	ACT091	Trade
	ACT092	Repair of small transport means, motorbikes and personal household appliances
	ACT093	Hotels
	ACT094	Restaurants
	ACT095	Transportation
	ACT096	Railway transport services
	ACT097	Water transport services
	ACT098	Air transport services
	ACT099	Communication services
	ACT100	Tourism
	ACT101	Banking, credit, treasury
	ACT102	Lottery
	ACT103	Insurance
	ACT104	Science and technology
	ACT105	Real estate
	ACT106	Real estate business and consultancy services
	ACT107	State management, defence and compulsory social security
	ACT108	Education and training
	ACT109	Health care, social relief
	ACT110	Culture and sport
	ACT111	Association
	ACT112	Other services
COMMODITIES	COM001	Paddy (all kinds)
	COM002	Raw rubber
	COM003	Coffee beans
	COM004	Sugarcane
	COM005	Tea
	COM006	Other crops
	COM007	Pig (All kinds)
	COM008	Cow (All kinds)
	COM009	Poultry
	COM010	Other livestock
	COM011	Irrigation service
	COM012	Other agricultural services
	COM013	Forestry
	COM014	Fishery
	COM015	Fish-Farming
	COM016	Coal
	COM017	Metallic ore
	COM018	Stone
	COM019	Sand, gravel
	COM020	Other none-metallic minerals
	COM021	Crude oil, natural gas (except exploration)
	COM022	Processed, preserved meat and by-products
	COM023	Processed vegetable, and animals oils and fats
	COM024	Milk, butter and other dairy products

COM025	Cakes, jams, candy, coca, chocolate products
COM026	Processed and preserved fruits and vegetables
COM027	Alcohol, beer and liquors
COM028	Beer and liquors
COM029	Non-alcohol water and soft drinks
COM030	Sugar, refined
COM031	Coffee, processed
COM032	Tea, processed
COM033	Cigarettes and other tobacco products
COM034	Processed seafood and by-products
COM035	Rice, processed
COM036	Other food manufactures
COM037	Glass and glass products
COM038	Ceramics and by-products
COM039	Bricks, tiles
COM040	Cement
COM041	Concrete, mortar and other cement products
COM042	Other building materials
COM043	Paper pulp and paper products and by-products
COM044	Processed wood and wood products
COM045	Basic organic chemicals
COM046	Basic inorganic chemicals
COM047	Chemical fertilizer
COM048	Fertilizer
COM049	Pesticides
COM050	Veterinary medicine
COM051	Health medicine
COM052	Processed rubber and by-products
COM053	Soap, detergents
COM054	Perfumes and other toilet preparations
COM055	Plastic (including semi-plastic products)
COM056	Other plastic products
COM057	Paint
COM058	Ink, varnish and other painting materials
COM059	Other chemical products
COM060	Health instrument and apparatus
COM061	Precise and optics equipment, meter (all kinds)
COM062	Home appliances and its spare parts
COM063	Motor vehicles, motor bikes and spare parts
COM064	Bicycles and spare parts
COM065	General-purpose machinery
COM066	Other general - purpose machinery
COM067	Other special-purpose machinery
COM068	Automobiles
COM069	Other transport means
COM070	Electrical machinery
COM071	Other electrical machinery and equipment

	COM072	Machinery used for broadcasting, television and information activities
	COM073	Non-ferrous metals and products
	COM074	Ferrous metals and products (except machinery equipment)
	COM075	Weaving of cloths (all kinds)
	COM076	Fibber, thread (all kinds)
	COM077	Ready-made clothes, sheets (all kinds)
	COM078	Carpets
	COM079	Weaving and embroidery of textile-based goods (except carpets)
	COM080	Products of leather tanneries
	COM081	Leather goods
	COM082	Animal feeds
	COM083	Products of printing activities
	COM084	Products of publishing house
	COM085	Other physical goods
	COM086	Gasoline, lubricants (already refined)
	COM087	Electricity, gas
	COM088	Water
	COM089	Civil construction
	COM090	Other construction
	COM091	Trade
	COM092	Repair of small transport means, motorbikes and personal household appliances
	COM093	Hotels
	COM094	Restaurants
	COM095	Transportation
	COM096	Railway transport services
	COM097	Water transport services
	COM098	Air transport services
	COM099	Communication services
	COM100	Tourism
	COM101	Banking, credit, treasury
	COM102	Lottery
	COM103	Insurance
	COM104	Science and technology
	COM105	Real estate
	COM106	Real estate business and consultancy services
	COM107	State management, defence and compulsory social security
	COM108	Education and training
	COM109	Health care, social relief
	COM110	Culture and sport
	COM111	Association
	COM112	Other services
MARGINS	TRDEmrg	Export Trade Margins
	TRDMmrg	Import Trade Margins
	TRDDmrg	Domestic Trade Margins
	TRNEmrg	Export Transportation Margins

	TRNMmrg	Import Transportation Margins
	TRNDmrg	Domestic Transportation Margins
FACTORS	LAND	Land
	LRMU	Labour Rural Male Uneducated
	LRMM	Labour Rural Male Medium Education
	LRMH	Labour Rural Male High Education
	LRFU	Labour Rural Female Uneducated
	LRFM	Labour Rural Female Medium Education
	LRFH	Labour Rural Female High Education
	LUMU	Labour Urban Male Uneducated
	LUMM	Labour Urban Male Medium Education
	LUMH	Labour Urban Male High Education
	LUFU	Labour Urban Female Uneducated
	LUFM	Labour Urban Female Medium Education
	LUFH	Labour Urban Female High Education
	CAP	Capital
ENTERPRISES	ENT	Enterprise
HOUSEHOLDS	HH01RMF	Household Rural Male Farmer Head
	HH02RMS	Household Rural Male Self-employed Head
	HH03RMW	Household Rural Male Wage-earner Head
	HH04RMN	Household Rural Male Non-employed Head
	HH05RFF	Household Rural Female Farmer Head
	HH06RFS	Household Rural Female Self-employed Head
	HH07RFW	Household Rural Female Wage-earner Head
	HH08RFN	Household Rural Female Non-employed Head
	HH09UMF	Household Urban Male Farmer Head
	HH10UMS	Household Urban Male Self-employed Head
	HH11UMW	Household Urban Male Wage-earner Head
	HH12UMN	Household Urban Male Non-employed Head
	HH13UFF	Household Urban Female Farmer Head
	HH14UFS	Household Urban Female Self-employed Head
	HH15UFW	Household Urban Female Wage-earner Head
	HH16UFN	Household Urban Female Non-employed Head
GOVERNMENT	GOV	Government Current
	ATAX	Production Activity Tax
	CTAX	Retail Commodity Sales Tax
	MTAX	Import Tariffs
	FTAX	Factor Tax
	ETAX	Enterprise Tax
	HTAX	Household Tax
CAPITAL	PINV	Private Inventory Change
	GINV	Government Inventory Change
CAPITAL	PCAP	Private Capital
	GCAP	Government Capital
	ACAP	Aggregate Savings-Investment Balance
REST OF THE WORLD	ROW	Rest of the World
TOTAL	TOTAL	Total

Appendix C: Dimensions of the 2003 Vietnam Macro SAM

	Activities	Commodities	Margins	Land	Labor	Capital	Enterprises	Households	Government	Production taxes	Sales taxes	Import tariffs	Factor taxes	Enterprise taxes	Household taxes	Private inventories	Government inventories	Private capital	Government capital	Aggregate capital	Rest of the World	Total
ACT		Domestic Marketed Supply						Private Home Consumption														(1)
COM	Intermediate Consumption		Marketing Margins					Private Marketed Consumption	Government Consumption							Private Inventory Changes	Government Inventory Changes	Private Investment	Government Investment		Exports (f.o.b.)	(2)
MRG		Marketing Margins																				(3)
LAND	Land value added																					(4)
LAB	Labor value added																				Net labor factor payments	(5)
CAP	Capital value added																				Net capital factor payments	(6)
ENT						Net capital value added			Government transfers to Enterprises													(7)
HH				Net land value added	Net labor value added		Distributed profits to households		Government transfers to Households												Net foreign transfers to Households	(8)
GOV							Distributed profits to government			Production taxes	Sales taxes	Import tariffs	Factor taxes	Enterprise taxes	Household taxes						Net foreign transfers to Government	(9)
T1	Production taxes																					(10)
T2		Sales taxes																				(11)
T3		Import tariffs																				(12)
T4				Land factor taxes		Capital factor taxes																(13)
T5							Enterprise taxes															(14)
T6								Household taxes														(15)
PINV																		Private Inventory Changes				(16)
GINV																			Government Inventory Changes			(17)
PCAP							Enterprise retained earnings	Household savings												Private Financing Requirement		(18)
GCAP									Government savings											Government Borrowing Requirement		(19)
ACAP																					Current account deficit of the RoP	(20)
ROW		Imports (c.i.f.)					Net enterprise foreign interest payments		Net government foreign interest payments													(21)
TOTAL	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	

Appendix D: Unbalanced 2003 Vietnam Macro SAM (bio. VND)

	ACT	COM	MRG	LAND	LAB	CAP	ENT	HH	GOV	T1	T2	T3	T4	T5	T6	PINV	GINV	PCAP	GCAP	ACAP	ROW	TOTAL
ACT		1,173,612						67,230														1,240,842
COM	715,542		36,091					339,221	37,807							12,476	350	157,958	46,650		363,856	1,709,951
MRG		36,091																				36,091
LAND	27,229																					27,229
LAB	295,933																				-106	295,827
CAP	199,266																				-9,759	189,507
ENT						181,175			16,308													197,483
HH				22,720	295,827		100,668		46,770												32,575	498,560
GOV							3,874			2,872	67,410	20,733	12,841	14,645	8,125						1,949	132,449
T1	2,872																					2,872
T2		67,410																				67,410
T3		20,733																				20,733
T4				4,509		8,332																12,841
T5							14,645															14,645
T6								8,125														8,125
PINV																		12,476				12,476
GINV																			350			350
PCAP							78,491	83,984												7,960		170,434
GCAP									28,207											18,793		47,000
ACAP																					28,839	28,839
ROW		415,173					-194		3,408													418,387
TOTAL	1,240,842	1,713,019	36,091	27,229	295,827	189,507	197,483	498,560	132,500	2,872	67,410	20,733	12,841	14,645	8,125	12,476	350	170,434	47,000	26,753	417,354	

Appendix E: Balanced 2003 Vietnam Macro SAM (bio. VND)

	ACT	COM	MRG	LAND	LAB	CAP	ENT	HH	GOV	T1	T2	T3	T4	T5	T6	PINV	GINV	PCAP	GCAP	ACAP	ROW	TOTAL
ACT		1,173,608						67,234														1,240,842
COM	715,542		36,115					339,470	37,797							12,494	350	158,305	46,657		365,265	1,711,996
MRG		36,115																				36,115
LAND	27,230																					27,230
LAB	295,942																				-106	295,836
CAP	199,256																				-9,730	189,527
ENT						181,195			16,303													197,497
HH				22,721	295,836		100,737		46,755												32,699	498,748
GOV							3,881			2,872	67,410	20,733	12,841	14,645	8,125						1,958	132,465
T1	2,872																					2,872
T2		67,410																				67,410
T3		20,733																				20,733
T4				4,509		8,332																12,841
T5							14,645															14,645
T6								8,125														8,125
PINV																		12,494				12,494
GINV																			350			350
PCAP							78,430	83,918												8,451		170,799
GCAP									28,214											18,793		47,007
ACAP																					27,244	27,244
ROW		414,130					-195		3,396													417,332
TOTAL	1,240,842	1,711,996	36,115	27,230	295,836	189,527	197,497	498,748	132,465	2,872	67,410	20,733	12,841	14,645	8,125	12,494	350	170,799	47,007	27,244	417,332	

Appendix F: Deviations between the balanced and unbalanced 2003 Vietnam Macro SAM (percent)

	ACT	COM	MRG	LAND	LAB	CAP	ENT	HH	GOV	T1	T2	T3	T4	T5	T6	PINV	GINV	PCAP	GCAP	ACAP	ROW	TOTAL
ACT		0.0%						0.0%														0.0%
COM	0.0%		0.1%					0.1%	0.0%							0.1%	0.0%	0.2%	0.0%		0.4%	0.9%
MRG		0.1%																				0.1%
LAND	0.0%																					0.0%
LAB	0.0%																				-0.3%	-0.3%
CAP	0.0%																				-0.3%	-0.3%
ENT						0.0%			0.0%													0.0%
HH				0.0%	0.0%		0.1%		0.0%												0.4%	0.4%
GOV							0.2%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						0.5%	0.7%
T1	0.0%																					0.0%
T2		0.0%																				0.0%
T3		0.0%																				0.0%
T4				0.0%		0.0%																0.0%
T5							0.0%															0.0%
T6								0.0%														0.0%
PINV																		0.1%				0.1%
GINV																			0.0%			0.0%
PCAP							-0.1%	-0.1%												6.2%		6.0%
GCAP									0.0%											0.0%		0.0%
ACAP																					-5.5%	-5.5%
ROW		-0.3%					0.4%		-0.3%													-0.2%
TOTAL	0.0%	-0.2%	0.1%	0.0%	0.0%	0.0%	0.5%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.4%	0.1%	6.2%	-4.9%	

Appendix G: Balanced 2003 Vietnam Micro SAM (bio. VND)

	ACT	COM	MRG	LAND	LAB	CAP	ENT	HH	STATE	T1	T2	T3	T4	T5	T6	PINV	GINV	PCAP	GCAP	ACAP	ROW	TOTAL
ACT		1,177,636						62,286														1,239,923
COM	714,654		36,272					343,937	36,601							12,786	359	158,428	46,213		366,586	1,715,836
MRG		36,272																				36,272
LAND	28,439																					28,439
LAB	297,367																				-125	297,242
CAP	196,596																				-9,927	186,669
ENT						178,337			15,815													194,152
HH				23,930	297,242		96,449		48,980												31,430	498,031
STATE							4,016			2,868	67,410	20,730	12,841	14,645	8,125						1,956	132,590
T1	2,868																					2,868
T2		67,410																				67,410
T3		20,730																				20,730
T4				4,509		8,332																12,841
T5							14,645															14,645
T6								8,125														8,125
PINV																		12,786				12,786
GINV																			359			359
PCAP							79,231	83,683												8,300		171,214
GCAP									27,780											18,793		46,573
ACAP																					27,093	27,093
ROW		413,786					-189		3,415													417,013
TOTAL	1,239,923	1,715,836	36,272	28,439	297,242	186,669	194,152	498,031	132,590	2,868	67,410	20,730	12,841	14,645	8,125	12,786	359	171,214	46,573	27,093	417,013	

Appendix H: Deviations between the balanced 2003 Macro SAM and the balanced 2003 Micro SAM (percent)

	ACT	COM	MRG	LAND	LAB	CAP	ENT	HH	STATE	T1	T2	T3	T4	T5	T6	PINV	GINV	PCAP	GCAP	ACAP	ROW	TOTAL
ACT		0.3%						-7.4%														-0.1%
COM	-0.1%		0.4%					1.3%	-3.2%							2.3%	2.6%	0.1%	-1.0%		0.4%	0.2%
MRG		0.4%																				0.4%
LAND	4.4%																					4.4%
LAB	0.5%																				17.9%	0.5%
CAP	-1.3%																				2.0%	-1.5%
ENT						-1.6%			-3.0%													-1.7%
HH				5.3%	0.5%		-4.3%		4.8%												-3.9%	-0.1%
STATE							3.5%			-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%						-0.1%	0.1%
T1	-0.1%																					-0.1%
T2		0.0%																				0.0%
T3		0.0%																				0.0%
T4				0.0%		0.0%																0.0%
T5							0.0%															0.0%
T6								0.0%														0.0%
PINV																		2.3%				2.3%
GINV																			2.6%			2.6%
PCAP							1.0%	-0.3%												-1.8%		0.2%
GCAP									-1.5%											0.0%		-0.9%
ACAP																					-0.6%	-0.6%
ROW		-0.1%					-3.2%		0.6%													-0.1%
TOTAL	-0.1%	0.2%	0.4%	4.4%	0.5%	-1.5%	-1.7%	-0.1%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.6%	0.2%	-0.9%	-0.6%	-0.1%	